

Claims:

1 -16 (cancelled)

17. (Currently amended) An apparatus for handling wafers, wherein the apparatus is configured to place said wafers from a wafer-holding cassette disposed on a loading station into a wafer processing vacuum chamber, and wherein said wafer processing vacuum chamber has a wafer holding device including a cooling plate and a heating plate, the apparatus for handling wafers comprising:

an external handling device having grippers for transferring said wafers between said cassette and said wafer processing vacuum chamber, wherein said external handling device is disposed external to said wafer processing vacuum chamber; and

an internal handling device disposed in a cooled area of said wafer processing vacuum chamber, said internal handling device having at least one fork arranged to move with at least two degrees of freedom and arranged to interact with said grippers of said external handling device to receive a wafer therefrom, said fork being arranged to move said wafers between said cooling plate and said heating plate,

wherein said wafer-holding cassette/loading station is disposed ~~along a linear axis in front of said vacuum chamber, extending through wherein~~ said cooling plate and said heating plate are disposed one in front of the other in said vacuum chamber, and wherein said internal and external handling devices are configured to move said wafers ~~along said linear axis~~ from said wafer holding cassette in front of the vacuum chamber to the said cooling plate and said heating plate in said vacuum chamber and back.

18. (Previously presented) Apparatus as specified in claim 17 wherein said fork is arranged to be movable under a placement location for said wafers on said wafer holding device.

19. (cancelled)

20. (cancelled)

21. (Previously presented) Apparatus as specified in claim 17 wherein there is provided a cooling device for cooling said internal handling device.

22. (Previously presented) Apparatus as specified in any of claims 17 through 21 wherein there are provided multiple heating and cooling plates arranged in a stack in said chamber.

23. (Previously presented) Apparatus as specified in claim 22 wherein said internal and external handling devices are arranged to load wafers on said multiple heating and cooling plates sequentially.

24. (Previously presented) Apparatus as specified in claim 22 wherein said internal and external handling devices are arranged to load wafers on said multiple plates simultaneously.

25. (Previously presented) Apparatus as specified in claim 17 wherein said fork is arranged to be preheated.

26. (Previously presented) Apparatus as specified in claim 25 wherein said fork is arranged to contact said heating plate for said preheating.

27. (Previously presented) Apparatus as specified in claim 17 wherein there is provided an additional internal handling device.

28. (Previously presented) Apparatus as specified in claim 17 wherein there are provided multiple chambers arranged in a stack.

29. (Previously presented) Apparatus as specified in claim 17 wherein said chamber has first and second openings and wherein there are provided two of said external handing devices, one for transferring wafers through each of said openings.

30. (Previously presented) Apparatus as specified in claim 17 wherein said chamber and said external handling device are surrounded by an enclosure.

31. (Previously presented) Apparatus as specified in claim 30 wherein said enclosure is purged by gas at a low overpressure.